

CLAIMS

WHAT IS CLAIMED IS:

1. A needle blade roll for use in an artificial cotton fabricating apparatus (1) which
5 fabricates artificial cotton by forming from a material (2) capable of formation of artificial cotton a large number of short fibers (3) ranging in fiber length between 1 and 200 mm and by accumulating said short fibers (3), said needle blade roll being mounted rotatably in a cylindrical casing (11) in order that a large number of short fibers (3) can be formed from said material (2),
10 wherein said needle blade roll comprises a roll main body (13) and a large number of needle blades (14) implanted into a peripheral surface of said roll main body (13) and wherein each said needle blade (14) is arranged at a sloping angle relative to an associated radial line of said roll main body (13) so that its leading end lies ahead of said radial line with respect to the rotational direction of said roll main body (13).
- 15 2. The needle blade roll of claim 1, wherein said needle blades (14) are implanted into said roll main body (13) so that said sloping angle (θ) relative to the radial line of said roll main body (13) falls in a range of $5^\circ \leq \theta \leq 30^\circ$.
3. The needle blade roll of either claim 1 or claim 2, wherein said needle blades (14) are arranged in helical fashion on the peripheral surface of said roll main body (13).
- 20 4. The needle blade roll of either claim 1 or claim 2, wherein the clearance (C) between said leading ends of said needle blades (14) of said roll main body (13) and an internal peripheral surface of said casing (11) falls in a range of $50 \mu\text{m} \leq C \leq 500 \mu\text{m}$.
5. The needle blade roll of claim 1, wherein said material (2) capable of formation of artificial cotton of said artificial cotton fabricating apparatus (1) is composed of at least
25 one selected from the group consisting of synthetic resin, yarn, and sliver.

6. The needle blade roll of claim 1, wherein said material (2) capable of formation of artificial cotton of said artificial cotton fabricating apparatus (1) is a synthetic resin.

7. The needle blade roll of either claim 5 or claim 6, wherein said synthetic resin comprises a fluoropolymer.

5 8. The needle blade roll of claim 7, wherein said fluoropolymer comprises polytetrafluoroethylene and/or an ethylene/tetrafluoroethylene copolymer.

9. The needle blade roll of claim 8, said polytetrafluoroethylene and/or ethylene/tetrafluoroethylene copolymer comprises a uniaxial drawn substance.

10 10. The needle blade roll of claim 5, wherein said yarn comprises glass fibers or carbon fibers.

11. The needle blade roll of claim 5, wherein said sliver comprises aramid fibers, polyimide fibers, sheep wool, or natural fibers.

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